Advances in Deep Learning (AIML308T)

Assignment-I

Q1. What is batch gradient descent (GD) technique used in deep learning? How batch gradient descent with momentum overcome the drawbacks associated with GD?

Q2. What is the need of regularization in deep learning? Explain L1 and L2 regularization techniques in deep learning.

Q3. What is covariate shift. How it can be addressed through different normalization techniques?

Q4. Explain the concept of drop out technique and early stopping in deep learning.

Q5. Differentiate between the following:

i)   Batch, instance, group and layer normalization in deep learning.
ii)   Semantic Segmentation and Instance Segmentation

Q6. What do you mean by skip connection network? How it can be used to address the problem of vanishing gradient?

Assignment-II

Q1. Explain different second order methods of training deep neural networks.

Q2. Explain saddle point problem encountered in training deep neural networks.? How it can be prevented?

Q3. Explain the architecture diagram of Generative Adversial Networks (GAN) along with its various components.

Q4. Explain, how autoencoders can be utilized to generate images using GAN network?

Q5. Explain NLP and its various applications. How visual instance recognition can be performed in NLP domain using deep learning?